Thoughtful Planning and Completion of Alfalfa Harvesting Leads to Bigger Profits

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Hay production can represent the most expensive feed source in the annual forage budget of a livestock operation. Species and cultivar selection, fertility management, harvesting, packaging and storage are all factors controlled by the manager, and can have a significant impact on the efficiency of preparing stored feed. Even a 5 percent increase in the effectiveness of a few factors can reduce feed costs by 15%!

Traditionally, the recommended cutting timing for alfalfa is at 10% bloom, the point at which yield is maximized, while maintaining high quality. If greater quality is required, cut earlier. Maximum quality in alfalfa is achieved at the prebud stage, however, cutting at this stage significantly reduces yield. In Saskatchewan, much of the growing season precipitation occurs in June – usually when alfalfa is at 10% bloom. If quality requirements allow it, delaying cutting may be preferable to rain damage. Insect and disease outbreaks can sometimes be controlled by cutting when an outbreak is approaching economically significant proportions. Cutting eliminates host vegetation and can modify conditions, such as lowering humidity at canopy level, to discourage pests.

Field losses will occur regardless of how the alfalfa is harvested, whether it is harvested as hay or silage. If the alfalfa is to be harvested as silage and the target Relative Feed Value is 150, cut at RFV 170. If the alfalfa is being harvested as hay, cut at RFV 185. Field losses when making hay are usually higher than for silage, due to weathering, rain damage and leaf loss during raking and baling. The goal of cutting management is to reduce the moisture content of the alfalfa to a level where it can either be baled or ensiled, in order to minimize respiration losses during curing, and to minimize the chance of rain damage. If hay is being raked, complete the operation before the moisture content of the hay drops below 40% moisture, to avoid excessive leaf loss.

When considering taking a second cut, economics must be evaluated. If hay is expensive, it may be worth cutting a half or two third ton second cut. Many of the costs of haying are fixed, if hay is cheap, it may not make economic sense to harvest a second cut. An assessment of winter injury risk should also be done. Stand age, cultivar, potassium levels in the soil, soil moisture and harvest frequency in the past will all impact on winter injury risk. Older stands are more susceptible to winter injury, as stands are thinner and disease is more prevalent. There is a wide range of winter hardiness available in alfalfa cultivars. Cultivars with greater winter hardiness will withstand late cutting better than less hardy ones. Potassium is important for maintaining cold tolerance in alfalfa. Potassium is usually adequate in Saskatchewan soils, but levels may be low in sandy, coarse textured or depleted soils. Winter injury can be more prevalent on wet soils, as heavy textured soils will heave with freezing and thawing during winter, damaging alfalfa roots. Stands harvested frequently will be more susceptible to winter injury, due to lower energy storage in the crown. Energy is required to support respiration during the winter, and growth the following spring.

When taking a final cut, leave a stubble height of 15-20 cm, to enhance snow trapping. Alfalfa requires 500 growing Degree Days (GDD) to regrow to a point where it has recovered enough to overwinter successfully. If there are less than 200 GDD, alfalfa will not grow to any significant degree. Therefore, if less than 200 GDD or more than 500 GDD are expected prior to killing frosts, it is safe to take a final cut of alfalfa.

Evaluating all aspects of alfalfa harvesting can allow for the refinement of management practices that will lead to greater efficiency and reduced stored feed costs.

Relative Feed Value (RFV) uses a single value to describe forage quality, and is calculated from feed analysis values. The formula for calculating RFV is:

RFV = (DDM * DMI)/1.29

where RFV = Relative Feed Value**,** DDM = Digestible Dry Matter (estimate of digestible fibre in the forage), and DMI = Dry Matter Intake, which is an estimate of how much forage an animal will consume.

Growing Degree Days (GDD) are the summation of mean daily temperature, assuming that there is a value or base temperature below which plants do not grow or grow very slowly (about 5 degrees C for cool season crops and 10 degrees C for warm season crops), the rate of growth increases as temperature increases above a base temperature and that plant growth and development are closely related to daily temperature mean accumulations above a base value in the absence of other limiting conditions.

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